Wisconsin DNR 24K Hydrography
Data Dictionary
Version 5

Contact: Ann Schachte
Wisconsin Department of Natural Resources
Bureau of Drinking Water & Groundwater

Wisconsin DNR 24K Hydrography
Data Dictionary for Coverage, Shapefile and ArcSDE Datasets
Version 5

OVERVIEW

Wisconsin DNR's 24K Hydrography Version 5 data are available in three different formats. The most robust is the coverage format (HYDNW924). This is the model that is maintained through an integrated maintenance system and from which the other two formats are derived. It has the rigid, internally maintained logical, relational and spatial topology inherent in the long-standard ESRI GIS coverage model. In addition to the base features (arcs, polygons and nodes), it has a linear referencing route system (STEM) and a water-polygon aggregation by water body region system (SHAID).

Data from the coverage format is converted to shapefile format in four independent shapefiles and two supplemental shapefiles. Each consists of a minimum of three files: <name>.SHP, <name>.SHX and <name>.DBF. It may have many more files (all <name>.*xyz* format) depending on attribute indexing, projection files and so on. The four independent shapefiles are:
- HYDLARC – all lines from the coverage arc feature class;
- HYDTSTEM – all routes (with linear referencing measures) from the coverage STEM route feature class;
- HYDRSHAI – all regions (representing just the open waters of Wisconsin) from the SHAID region feature class of the coverage;
- HYDPPOLY – all polygons (representing both land and water) from the polygon class of the coverage; this set is available by request only (for its metadata primarily) and is rarely used.

The two supplemental shapefiles are:
- HYDRUPLD – all the land polygons (uplands and islands) from the polygon feature class of the coverage; this is useful primarily for mapping purposes;
- HYDPMASK – a shapefile to mask out all features in the other layers that are outside the state boundaries; this is exclusively for mapping purposes (not derived from 24K Hydrography).

The enterprise data repository schema on the development and production instances of ArcSDE/Oracle has four feature classes loaded in the SDEDNR.EN_SURFACE_WATER_DATA_24K feature dataset:
- SDEDNR.EN_SURFACE_WATER_LN_24K – all lines from the coverage arc feature class;
- SDEDNR.EN_SURFACE_WATER_STEM_LN_24K – all routes (with linear referencing measures) from the coverage STEM route feature class;
- SDEDNR.EN_SURFACE_WATER_SHAID_AR_24K – all regions (representing just the open waters of Wisconsin) from the SHAID region feature class of the coverage;
- SDEDNR.EN_SURFACE_WATER_UPLND_AR_24K – all the land polygons (uplands and islands) from the polygon feature class of the coverage; this is useful primarily for mapping purposes.

One feature class - SDEDNR.EN_SURFACE_WATER_MASK_AR_24K - is also loaded on both instances, but is not included in the SDEDNR.EN_SURFACE_WATER_DATA_24K feature dataset because of its larger spatial extent (i.e., different X/Y Domain). Currently, these are loaded to SDE from the shapefile format of the data. See DNR's ArcSDE homepage (http://intranet.dnr.state.wi.us/itworks/data/sde.asp) for more information about accessing and using ArcSDE/Oracle data.

LINE FEATURE CLASS

This feature class contains 24K Hydrography arcs (lines). The record for each linear water feature contains useful information, such as water feature type; duration; primary or secondary flow path; and whether or not it is landlocked. In addition, each line has direction (a from-end and a to-end) that points downstream for those representing flow. Some linear features also contain names from USGS's Geographic Name Information System (GNIS) and Water Body ID Codes (WBICs). The lines and their attribute information allow the user to execute spatial and tabular queries about the data, make maps, and perform flow analysis and network traces. This feature class should be used for cartographic purposes, analyses pertaining to lines, hydrographic modeling, and network traces.

Wisconsin DNR 24K Hydrography
Data Dictionary for Coverage, Shapefile and ArcSDE Datasets
Version 5

HYDNW924.AAT Coverage (load source for other formats)	HYDLARC Shapefile	EN_SURFACE_ WATER_LN_24K SDE Feature Class	DESCRIPTION / DOMAIN
--	--	OBJECTID	*Object ID.* Internal ArcSDE unique numerical identifier for each arc.
--	SHAPE	--	Shapefile geometry parameters
FNODE# *4, 5 binary*	FNODE_ *9 long integer*	FNODE_ID *9 long integer*	*From Node Identifier.* Unique numerical identifier for each "from" node. Default coverage item – should not be edited.
TNODE# *4, 5 binary*	TNODE_ *9 long integer*	TNODE_ID *9 long integer*	*To Node Identifier.* Unique numerical identifier for each "to" node. Default coverage item – should not be edited.
LPOLY# *4, 5 binary*	LPOLY_ *9 long integer*	LPOLY_ID *9 long integer*	*Left Polygon Identifier.* Unique numerical identifier for each "left" polygon. Default coverage item – should not be edited.
RPOLY# *4, 5 binary*	RPOLY_ *9 long integer*	RPOLY_ID *9 long integer*	*Right Polygon Identifier.* Unique numerical identifier for each "right" polygon. Default coverage item – should not be edited.
LENGTH *8, 18 floating point*	LENGTH *18, 3 double*	--	*Arc length.* Default ArcInfo item in cover units (meters)
HYDNW924# *4, 5 binary*	HYDNW924_ *9 long integer*	--	*Record number.* Default coverage item – should not be edited.
HYDNW924-ID *4, 5 binary*	HYDNW924-I *9 long integer*	--	*Identification number.* Default coverage item.
SW_NO * *8, 8 integer*	SW_NO * *9 long integer*	SW_NO * *9 long integer*	*Surface Water Number.* Unique numerical identifier for each arc.
RIVSYSNAME * *50, 50 character*	RIVSYSNAME* *50 text*	RIVER_SYS_NAME* *50 text*	*River System Name.* Name of the river system **based on USGS Geographic Names Information System (GNIS).** Except for incoming tributaries, any linear water feature holding the same name as the main river to which it is attached is considered part of that river system. Examples: centerlines through reservoirs/flowages, flow potentials through backwaters and secondary flow features (braided streams). Values: • \<GNIS Name\> = GNIS name for the feature. Applies ONLY to arcs that carry flow. • Unnamed = No GNIS name for the feature. Applies ONLY to arcs that carry flow. • NA = Not Applicable. Applies to all arcs that DO NOT carry flow.
ROW_NAME *70, 70 character*	ROW_NAME *70 text*	ROW_NAME *70 text*	*ROW Name.* WDNR's Official Name from the Register of Waterbodies.
RIVSYSWBIC * *7, 7 integer*	RIVSYSWBIC* *9 long integer*	RIVER_SYS_WBIC* *9 long integer*	*River System Water Body Identification Code.* Water Body Identification Code (WBIC) of the river system. DNR's Register of Waterbodies (ROW) database is the source of WBICs. Except for incoming tributaries, any linear water feature holding the same WBIC as the main river to which it is attached is considered part of that river system. Examples: centerlines through reservoir/flowages, flow potentials through backwaters and secondary flow features

Wisconsin DNR 24K Hydrography
Data Dictionary for Coverage, Shapefile and ArcSDE Datasets
Version 5

HYDNW924.AAT *Coverage (load source for other formats)*	HYDLARC *Shapefile*	EN_SURFACE_ WATER_LN_24K *SDE Feature Class*	DESCRIPTION / DOMAIN
			(braided streams). Values: • \<WBIC\> = WBIC provided by ROW. Applies ONLY to arcs that carry flow. • 0 = No WBIC provided from ROW to assign to that feature. Applies ONLY to arcs that carry flow. • -1 = Not Applicable. Applies to all arcs that DO NOT carry flow.
CARTO *3, 3 character*	CARTO *3 text*	CARTO_USE_FLAG *3 text*	*Cartography Use Flag.* Character code indicating if the feature allows for easy cartographic representation. Applies to ALL arcs. Values: • YES = feature allows for easy cartographic representation. Includes the following LINEAR TYPE values: BK, CB, DC, ST, UN, and ZZ. • NO = feature does not allow for easy cartographic representation. Includes the following LINEAR TYPE values: CL, EX, FP, OC, WG, and XX.
LINEAR_TYP * *2, 2 character*	LINEAR_TYP * *2 text*	LINE_TYPE_CODE* *2 text*	*Linear Type.* Character code that indicates the linear hydrographic feature type for each arc. Applies to ALL arcs. Values: • BF = State Boundary Buffer • BK = Bank or Shoreline • CB = Cranberry Bog Waterway • CL = Stream Center Line • CW = Channel in Water Area • DC = Ditch or Canal • EX = Stream Extension • FP = Flow Potential • OC = Original Water Course • ST = Single-line Stream • UN = Unknown • WG = Wetland Gap Connector • XX = Closure Line • ZZ = Convoluted Stream
QUADLINE *3, 3 character*	QUADLINE *3 text*	QUAD_LINE_FLAG *3 text*	*Quadrangle Line.* Character code indicating if the arc closes off a water polygon or completes a stream flow at a quadrangle boundary when the feature does not match between adjacent quads. Applies to ALL arcs. Values: • YES = arc completes a water feature. • NO = arc does not complete a water feature.
DURATION *2, 2 character*	DURATION *2 text*	WATER_DURATION _CODE *2 text*	*Water Duration.* Character code indicating the span of time during which the feature contains water. Applies to ALL arcs. Values: • PN = Perennial (based on cartographic symbolization) • FX = Fluctuating (based on LINEAR TYPE *and* cartographic symbolization). Example: diffuse

HYDNW924.AAT *Coverage* *(load source for other formats)*	**HYDLARC** *Shapefile*	**EN_SURFACE_ WATER_LN_24K** *SDE Feature Class*	**DESCRIPTION / DOMAIN**
			connectors and wetland gaps. All are based on *LINEAR TYPE*) • IT = Intermittent (based on cartographic symbolization). • NA = Not Applicable (for original water courses, channels in rivers, closure lines, etc.)
LANDLOCKED *3, 3 character*	LANDLOCKED *3 text*	LANDLOCK_CODE *3 text*	*Landlocked Code.* Character code indicating if the feature is part of a landlocked hydro network. Values: • YES = Feature is part of a landlocked hydro network that does not flow out of the state. Applies ONLY to arcs that carry flow. • NO = Feature is part of a hydro network that flows into Lake Superior, Lake Michigan or the Mississippi River. Applies ONLY to arcs that carry flow. • NA = Not Applicable. Applies to all arcs that DO NOT carry flow.
FLOW * *2, 2 character*	FLOW * *2 text*	WATER_FLOW_ CODE* *2 text*	*Water Flow.* Character code indicating if the flow of water is primary or secondary. Values: • P = Primary water flow. Applies ONLY to arcs that carry flow. • S = Secondary water flow. Applies ONLY to arcs that carry flow. • NA = Not Applicable. Applies to all arcs that DO NOT carry flow.
LR_BANK *2, 2 character*	LR_BANK *2 text*	WATER_POLY_ BANK_CODE *2 text*	*Left/Right Bank.* Character code indicating if the water polygon boundary is on the left or right side of the feature. Left and right are determined by the flow direction. Values: • L = Left Bank. Applies to streams, flowages, and "water polygons with centerlines or flow potential". • R = Right Bank. Applies to streams, flowages, and "water polygons with centerlines or flow potential". • LR = Left and Right Banks (single-line streams). Applies to streams, ditches and the like. • NA = Not Applicable. Applies to the following LINEAR TYPE values: BF, CL, CW, EX, FP, OC, UN, and XX.
AR_BND_TYP *4, 4 character*	AR_BND_TYP *4 text*	AREA_BND_CODE *4 text*	*Area Boundary Type.* Character code that reveals the POLYGON TYPE on either side of the linear feature (created by the combination of the two POLYGON TYPE values on either side of a given line). Examples of the 289 possible combinations are:

HYDNW924.AAT *Coverage (load source for other formats)*	HYDLARC *Shapefile*	EN_SURFACE_ WATER_LN_24K *SDE Feature Class*	DESCRIPTION / DOMAIN
			- DPUP = Duck pond - ISLP = Island/lake-pond (island shoreline) - LPUP = Lake-pond/upland (lake shoreline) - LPST = Closure line between a lake and stream - RFUP = Reservoir-flowage/upland (reservoir shoreline) - STUP= Stream/upland (stream bank)
OH_SRC_YR *4, 4 integer*	OH_SRC_YR *9 long integer*	ORIG_HRZ_ SRC_YEAR *9 long integer*	*Original Horizontal Source Year.* Most recent year of the data source that was utilized in our data capture; WIDNR constructed features (ORIGINAL HORIZONTAL COLLECTION METHOD of TAB002, SCR004 or SCR006) carry the year date that the watershed processing was completed.
OH_COL_MTH *6, 6 character*	OH_COL_MTH *6 text*	ORIG_HRZ_COLL_ MTHD_CODE *6 text*	*Original Horizontal Collection Method.* Character code indicating the method of data collection or conversion. (i.e. how the arc was created/derived). Values: - CNV001 = Provided in digital form from known source and converted for DNR use - SCN001 = Scanning or vectorizing technique - SCR003 = Digitized on screen: feature published/visible on USGS 7.5' DRG - SCR004 = Digitized on screen: feature interpreted from USGS 7.5' DRG - SCR005 = Digitized on screen: feature published/visible on digital vector data - SCR006 = Digitized on screen: feature interpreted from digital vector data - TAB001 = Digitized on table: feature published/visible on map sheet - TAB002 = Digitized on table: feature interpreted from map sheet
OH_SRC_DNM *10, 10 integer*	OH_SRC_DNM *9 long integer*	ORIG_HRZ_SRC_ DNOM_AMT *9 long integer*	*Original Horizontal Source Denominator.* Denominator of map scale source.
BUILD_DATE *8, 10 date*	BUILD_DATE *Date*	LAST_EDIT_DATE *Date*	*Last Edit Date.* Date indicating when the feature was added and verified by the editor.
HYD_VER *3, 3 integer*	HYD_VER *9 long integer*	LAST_UPDATE_ HYDRO_VER_NO *9 long integer*	*Last Updated Hydro Version Number.* Most recent Hydro release (version) number in which the feature was edited. Example: The first release will have all arcs valued at 1.
WGS-ID *4, 4 integer*	WGS-ID *9 long integer*	WGS_ID *9 long integer*	*Wisconsin Geological Survey Identifier.* The Wisconsin Geological Survey (WGS) quadrangle identification code.
WBIC_ADDED *8, 10 date*	WBIC_ADDED *Date*	WBIC_ADDED_ DATE *Date*	*WBIC Added Date.* The date the WBIC was first added to the hydro layer.
WBIC_BY	WBIC_BY	WBIC_EDIT_ USER_ID	*WBIC Editor Identifier.* User ID of editor who last edited or verified WBIC.

Wisconsin DNR 24K Hydrography
Data Dictionary for Coverage, Shapefile and ArcSDE Datasets
Version 5

HYDNW924.AAT *Coverage (load source for other formats)*	HYDLARC *Shapefile*	EN_SURFACE_ WATER_LN_24K *SDE Feature Class*	DESCRIPTION / DOMAIN
7, 7 character	*7 text*	*7 text*	
WBIC_DATE *8, 10 date*	WBIC_DATE *Date*	WBIC_EDIT_DATE *Date*	*WBIC Edit Date.* Date the feature WBIC was last quality assured.
WBIC_STAT *10, 10 character*	WBIC_STAT *10 text*	WBIC_STATUS_ TYPE *10 text*	*WBIC Status Type.* Character code indicating the feature's WBIC status. Values: • LOCATED = Feature does not have final approval from the Register of Waterbodies (ROW) File Mgr. • NOT ASSIGNED = Feature has not been given a WBIC value. • ACCEPTED = Feature has been given a WBIC value. • NA = Not Applicable. Applies to all arcs that DO NOT carry flow.
WBIC_VER *3, 3 integer*	WBIC_VER *9 long integer*	WBIC_ADD_HYD_ VER_NO *9 long integer*	*WBIC Added Hydro Version Number.* The Hydro release (version) number to which the WBIC was first added.
GEOM_CHFLG *1, 1 integer*	GEOM_CHFLG *9 long integer*	GEOM_CHANGE_ FLAG *9 long integer*	*Geometric Change Flag.* Numeric code indicating if any dimensional or positional attributes of the feature have changed. Values: • 1 = Feature has been changed geometrically. • 0 = Feature has not been changed geometrically.
NAT_CHFLG *1, 1 integer*	NAT_CHFLG *9 long integer*	NATURAL_ CHANGE_FLAG *9 long integer*	*Natural Change Flag.* Numeric code indicating if any natural attributes of the feature (such as LINER TYPE, DURATION, FLOW, LANDLOCKED) have changed. Values: • 1 = At least one natural attribute of the feature has changed. • 0 = No natural attributes have changed.
GNIS_CHFLG *1, 1 integer*	GNIS_CHFLG *9 long integer*	GNIS_CHANGE_ FLAG *9 long integer*	*GNIS Change Flag.* Numeric code indicating if any GNIS attributes (such as RIVER SYSTEM NAME) of the feature have changed. Values: • 1 = GNIS name has changed. ᵥ 0 = No name change.
WBIC_CHFLG *1, 1 integer*	WBIC_CHFLG *9 long integer*	WBIC_CHANGE_ FLAG *9 long integer*	*WBIC Change Flag.* Numeric code indicating if the WBIC value (RIVER SYSTEM WBIC) of the feature has changed. Values: • 1 = WBIC attribute has been altered. • 0 = WBIC unchanged.
REF_CHFLG *1, 1 integer*	REF_CHFLG *9 long integer*	REF_CHANGE_ FLAG *9 long integer*	*Reference Change Flag.* Numeric code indicating if any reference attributes of the feature (i.e., WBIC_BY, WBIC_DATE and/or WBIC_STAT (unless WBIC_CHFLG is also set); QUADLINE, OH_SRC_YR, OH_COL_MTH, OH_SRC_DNM or WGS-ID) have changed. Values:

HYDNW924.AAT *Coverage* *(load source for other formats)*	HYDLARC *Shapefile*	EN_SURFACE_ WATER_LN_24K *SDE Feature Class*	DESCRIPTION / DOMAIN
			• 1 = One or more items in the above list have been altered. • 0 = No changes.
FLIP_CHFLG *1, 1 integer*	FLIP_CHFLG *9 long integer*	FLIP_CHANGE_ FLAG *9 long integer*	*FLIP Change Flag.* Numeric code indicating if the direction of the arc has been "flipped" (direction reversed). Values: • 1 = Arc has been flipped. • 0 = Arc has not been flipped.
NEW *1, 1 integer*	NEW *9 long integer*	NEW_FEAT_ FLAG *9 long integer*	*New Feature Flag.* Numeric code indicating if the feature was newly added in this Hydro release (version). Values: • 1 = A new feature. • 0 = Not a new feature.
--	--	SHAPE *Geometry*	*SHAPE.* ArcSDE feature class geometry parameters.
--	--	SHAPE.LEN *Double*	*Length.* ArcSDE internally calculated arc length.

* these attributes have been indexed for faster query.

POLYGON FEATURE CLASS

Polygons are a feature class consisting of all areas in the 24K Hydro coverage, including water polygons, uplands, and islands. They contain various descriptive attributes, including water feature types, duration, names, Water Body ID codes (WBICs), and metadata information. The linear features (such as centerlines, extensions and closure lines) that were added to connect flow paths through the water bodies and double-line streams, split water bodies and wide streams into smaller polygons that no longer represent the complete features. Therefore, for most mapping and many query and modeling applications, one should use the SHAID (region) feature class, mentioned below.

HYDNW924.PAT *Coverage* *(load source for other formats)*	HYDPPOLY *Shapefile*	-- *SDE Feature Class*	DESCRIPTION / DOMAIN
--	SHAPE *Geometry*		*Shape Type.* Default shapefile item.
AREA *8, 18 floating point*	AREA *18, 3 double*		*Polygon Area.* Default coverage item. Internally calculated feature area – should not be edited.
PERIMETER *8, 18 floating point*	PERIMETER *18, 3 double*		*Polygon Perimeter.* Default coverage item. Internally calculated feature perimeter – should not be edited.
HYDNW924# *4, 5 binary*	HYDNW924_ *9 long integer*		*Record Number.* Default coverage item – should not be edited.
HYDNW924-ID *4, 5 binary*	HYDNW924-I *9 long integer*		*Record Identification Number.* Default coverage item.
SW_NO*	SW_NO*		*Surface Water Number.* Unique numerical identifier for

HYDNW924.PAT *Coverage* *(load source for* *other formats)*	HYDPPOLY *Shapefile*	-- *SDE Feature Class*	DESCRIPTION / DOMAIN
8, 8 integer	*9 long integer*		each polygon.
NAME *50, 50 character*	NAME *50 text*		*GNIS Name.* Name of the feature based on USGS Geographic Names Information System (GNIS). Values: • <GNIS Name> = GNIS name of the feature. • Unnamed = No GNIS name of the feature. • NA = Does not apply (for uplands only).
WBIC *7, 7 integer*	WBIC *9 long integer*		*Water Body Identification Code.* Water Body Identification Code (WBIC) of the water polygon. DNR's Register of Waterbodies (ROW) database is the source of WBICs. Except for incoming tributaries, any linear water feature holding the same WBIC as the main river to which it is attached is considered part of that river system. Examples: centerlines through reservoir/flowages, flow potentials through backwaters and secondary flow features (braided streams). Values: • <WBIC> = WBIC provided by ROW. Applies ONLY to water polygons. • 0 = No WBIC provided from ROW to assign to that feature. Applies ONLY to water polygons. • -1 = Not Applicable. Applies to all land polygons – islands and uplands.
POLY_TYP *2, 2 character*	POLY_TYP *2 text*		*Polygon Type.* Character code indicating the polygon type for areal water and land features. Values: • BA = Backwater. • CB = Cranberry Bog. • DP = Duck Pond. • DC = Ditch or Canal. • FH = Fish Hatchery or farm. • FE = Flooded Excavation (e.g. pits, quarries, old mines). • IA =Inundation Area. • IS = Island. • IW = Industrial Waste Pond. • LP = Lake or Pond. • RF = Reservoir or Flowage. • ST = Double-line Stream. • SD = Sewage disposal pond or filtration beds. • TP = Tailings Pond. • UN = Unknown hydrography polygon. • UP = Upland – all non-water polygons other than islands. • ZZ = Convoluted Stream.
DURATION *2, 2 character*	DURATION *2 text*		*Water Duration.* Character code indicating the span of time during which the feature contains water. Values: • PN = Perennial (based on cartographic symbolization). • FX = Fluctuating (based on POLYGON TYPE = CB

HYDNW924.PAT Coverage (load source for other formats)	HYDPPOLY Shapefile	-- SDE Feature Class	DESCRIPTION / DOMAIN
			and IA). • IT = Intermittent (based on cartographic symbolization). • NA = Not Applicable – for all polygons that do not contain water and for POLYGON TYPE UN hydrography polygons.
LANDLOCKED 3, 3 character	LANDLOCKED 3 text		*Landlocked.* Character code indicating if the feature is part of a landlocked hydro network. Values: • YES = Water feature is part of a landlocked hydro network that does not flow out of the state. • NO = Water feature is part of a hydro network that flows into Lake Superior, Lake Michigan or the Mississippi River. • NA = Not applicable for all upland (UP) and island (IS) polygons.
OH_COL_MTH 6, 6 character	OH_COL_MTH 6 text		*Original Horizontal Collection Method.* MLT004 Polygons composed of arcs with various attributes – see arc attributes.
BUILD_DATE 8, 8 date	BUILD_DATE date		*Last Edit Date.* Date indicating when the feature was added and verified by the editor.
HYD_VER 3, 3 integer	HYD_VER 9 long integer		*Hydro Version.* Most recent Hydro release (version) number in which the feature was edited. Example: The first release will have all polygons valued at 1.
WBIC_ADDED 8, 10 date	WBIC_ADDED Date		*WBIC Added Date.* The date the WBIC was first added to the hydro layer
WBIC_BY 7, 7 character	WBIC_BY 7 text		*WBIC Editor Identifier.* User ID of editor who last edited or verified WBIC.
WBIC_DATE 8, 10 date	WBIC_DATE date		*WBIC Edit Date.* Date the feature WBIC was last quality assured.
WBIC_VER 3, 3 integer	WBIC_VER 9 long integer		*WBIC Added Hydro Version Number.* The Hydro release (version) number to which the WBIC was first added.
WBIC_STAT 10, 10 character	WBIC_STAT 10 text		*WBIC Status Type.* Character code indicating the feature's WBIC status. Values: • LOCATED = Feature does not have final approval from the Register of Waterbodies (ROW) File Mgr NOT ASSIGNED = Feature has not been given a WBIC value. • ACCEPTED = Feature has been given a WBIC value. • NA = Not Applicable. Applies to all land polygons.

* these attributes have been indexed for faster query.

Wisconsin DNR 24K Hydrography
Data Dictionary for Coverage, Shapefile and ArcSDE Datasets
Version 5

NODE FEATURE CLASS

In the coverage format, arcs begin and end at nodes. 24K Hydrography nodes have one significant attribute indicating their role in the flow network.

HYDNW924.NAT Coverage (load source for other formats)	-- Shapefile	-- SDE Feature Class	DESCRIPTION / DOMAIN
ARC# 4, 5 Binary			*Record Number of one of the arcs connected to the node.* Default coverage item – should not be edited.
HYDNW924# 4, 5 Binary			*Record Number.* Default coverage item – should not be edited.
HYDNW924-ID 4, 5 Binary			*Record Identification Number.* Default coverage item.
DRAIN 2, 2 integer			*Drain Code.* Role of node in the transport system 0 Not downstream end of transport system 1 Down-stream end of non-landlocked transport system (secondary drain) 2 Down-stream end of landlocked transport system (main drain) 3 Down-stream end of state of non-landlocked transport system (main drain)

STEM SECTION FEATURE CLASS

The 24K Hydrography route system (STEM) has a required building block in the coverage model – sections. In 24K Hydrography, there is one section per transport arc and one or more sections make up a single route. The STEM section class is mainly a cross reference table between arcs and routes, using the primary keys in each feature class. This feature class has little use except for the most intense relational analysis.

HYDNW924 .SECSTEM Coverage (load source for other formats)	-- Shapefile	-- SDE Feature Class	DESCRIPTION / DOMAIN
ROUTELINK# 4, 5 Binary			*ROUTELINK#.* Record number of related STEM route (STEM# on route). Default coverage item – should not be edited.
ARCLINK# 4, 5 Binary			*ARCLINK#.* Record number of related arc (HYDNW924# on arc). Default coverage item – should not be edited.
F-MEAS 4, 12 Floating point			*F-MEAS.* From-measure; default ArcInfo item.
T-MEAS 4, 12 Floating point			*T-MEAS.* To-measure; default ArcInfo item.
F-POS 4, 12 Floating point			*F-POS.* From-position. Default ArcInfo item (percentage of total arc length where section starts, should always be 100).

HYDNW924 .SECSTEM Coverage (load source for other formats)	-- Shapefile	-- SDE Feature Class	DESCRIPTION / DOMAIN
T-POS 4, 12 Floating point			T-POS. To-position. Default ArcInfo item (percentage of total arc length where section ends, should always be 0)
STEM# 4, 5 Binary			STEM#. Record number. Default ArcInfo item – should not be edited.
STEM-ID 4, 5 Binary			STEM-ID. Identification number; default ArcInfo item
UNIT 4, 12 Floating point			UNIT – Numerical difference of T-MEAS and F-MEAS

STEM FEATURE CLASS (ROUTES)

The STEM system provides a linear referencing system in the coverage model. The attributes in the STEM table primarily support this role with some additional metadata attributes. This feature class should not be used for flow modeling. Instead, use a subset of the line feature class with its richer attribute table.

HYDNW924 .RATSTEM Coverage (load source for other formats)	HYDTSTEM.SHP Shapefile	EN_SURFACE_ WATER_STEM_LN _24K SDE Feature Class	DESCRIPTION / DOMAIN
		OBJECTID	
--	SHAPE Geometry	--	SHAPE. Default shapefile item.
STEM# 4, 5 Binary	STEM_ 9 Long integer	--	Record number. Default coverage item – should not be edited.
STEM-ID 4, 5 Binary	STEM-ID 9 Long integer	--	Record identifier. Default coverage item.
STEM_NO * 8, 8 integer	STEM_NO * 9 Long integer	STEM_NO* 9 long integer	Stem Number. Unique numerical identifier for each route.
HYD_VER 3, 3 integer	HYD_VER 3 short integer	LAST_UPDATE_ HYDRO_VER_NO 9 long integer	Hydro Version. Most recent Hydro release (version) number in which the feature was edited. Example: The first release will have all polygons valued at 1.
LOMEAS 8, 18 Floating Point	LOMEAS 18, 3 double	ROUTE_LOW_ MEAS_UNIT_NO 21, 3 double	Low measure value. The low measure on the route (always 10).
HIMEAS 8, 18 Floating Point	HIMEAS 18, 3 double	ROUTE_HIGH_ MEAS_UNIT_NO 21, 3 double	High measure value. The high measure on the route (always greater than the low measure value and always a multiple of 10).
MILES 8, 18 Floating Point	MILES 18, 3 double	ROUTE_UNIT_ MILE_AMT 21, 3 double	Miles. Length of route in miles.

HYDNW924 .RATSTEM *Coverage (load source for other formats)*	HYDTSTEM.SHP *Shapefile*	EN_SURFACE_ WATER_STEM_LN _24K *SDE Feature Class*	DESCRIPTION / DOMAIN
LENGTH *8, 18 Floating Point*	LENGTH *18, 3 double*	--	*Length.* Length of route in meters.
UNIT *4, 4 integer*	UNIT *4 short integer*	ROUTE_UNIT_ DIFF_AMT *21, 3 double*	*Units.* Length of route in unitless measures (High measure value minus Low measure value).
GEOM_CHFLG *1, 1 integer*	GEOM_CHFLG *1 short integer*	GEOM_CHANGE_ FLAG *9 long integer*	*Geometric Change Flag.* Numeric code indicating if any dimensional or positional attributes of the feature have changed. Values: • 1 = Feature has been changed geometrically. • 0 = Feature has not been changed geometrically.
FLIP_CHFLG *1, 1 integer*	FLIP_CHFLG *1 short integer*	FLIP_CHANGE_ FLAG *9 long integer*	*FLIP Change Flag.* Numeric code indicating if the direction of the arc has been "flipped" (direction reversed). Values: • 1 = Arc has been flipped. • 0 = Arc has not been flipped.
NEW *1, 1 integer*	NEW *1 short integer*	NEW_FEAT_FLAG *9 long integer*	*New Feature Flag.* Numeric code indicating if the feature was newly added in this Hydro release (version). Values: • 1 = A new feature. • 0 = Not a new feature.

• these attributes have been indexed for faster query.

SHAID FEATURE CLASS (REGIONS)

While every closed area in the coverage model is a polygon (whether land or water), in 24K Hydrography, regions were used to represent only the open waters of Wisconsin. This layer should be used for mapping, query and some analysis.

HYDNW924 .PATSHAID *Coverage (load source for other formats)*	HYDRSHAI.SHP *Shapefile*	EN_SURFACE_ WATER_SHAID_ AR_24K *SDE Feature Class*	DESCRIPTION / DOMAIN
--	SHAPE	--	*SHAPE.* Default shapefile item.
AREA *8, 18 floating point*	AREA *18, 3 double*	--	*Polygon Area.* Default coverage item. Internally calculated feature area – should not be edited.
PERIMETER *8, 18 floating point*	PERIMETER *18, 3 double*	--	*Polygon Perimeter.* Default coverage item. Internally calculated feature perimeter – should not be edited.
SHAID# *4, 5 Binary*	SHAID_ *9 long integer*	--	*Record Number.* Default coverage item – should not be edited.
SHAID-ID *4, 5 Binary*	SHAID_ID *9 long integer*	--	*Record Identification Number.* Default coverage item.
--		OBJECTID	*Object ID.* Internal ArcSDE unique numerical

HYDNW924 .PATSHAID *Coverage (load source for other formats)*	**HYDRSHAI.SHP** *Shapefile*	**EN_SURFACE_ WATER_SHAID_ AR_24K** *SDE Feature Class*	**DESCRIPTION / DOMAIN**
			identifier for each SHAID.
SHAID_NO* *8 integer*	SHAID_NO* *9 long integer*	SHAID_NO* *9 long integer*	*SHAID Number.* Unique numeric identifier for each SHAID.
SHAIDNAME* *50 character*	SHAIDNAME* *50 text*	SHAID_NAME* *50 text*	*SHAID Name.* Name of the SHAID based on USGS Geographic Names Information System (GNIS).
SHAIDWBIC* *7 integer*	SHAIDWBIC* *9 long integer*	SHAID_WBIC* *9 long integer*	*SHAID Waterbody Identification Code (WBIC).* Water Body Identification Code (WBIC) of the SHAID. DNR's Register of Waterbodies (ROW) database is the source of WBICs. Values: • <WBIC> = WBIC provided by ROW. • 0 = No WBIC provided from ROW to assign to that feature.
SHDROWNAME *70, 70 character*	SHDROWNAME *70 text*	SHAID_ROW_ NAME *70 text*	*ROW Name.* WDNR's Official Name for the water area from the Register of Waterbodies.
RIVSYSNAME* *50 character*	RIVSYSNAME* *50 text*	RIVER_SYS_NAME* *50 text*	*River System Name.* Name of the river system based on USGS Geographic Names Information System (GNIS). Except for incoming tributaries, any SHAID feature holding the same name as the main river to which it is attached is considered part of that river system. Examples: reservoirs/flowages, backwaters and secondary flow features (braided streams). Values: • <GNIS Name> = GNIS name for the feature. • Unnamed = No GNIS name for the feature.
RIVSYSWBIC* *7 integer*	RIVSYSWBIC* *9 long integer*	RIVER_SYS_WBIC* *9 long integer*	*River System Water Body Identification Code.* Water Body Identification Code (WBIC) of the river system. DNR's Register of Waterbodies (ROW) database is the source of WBICs. Except for incoming tributaries, any SHAID feature holding the same WBIC as the main river to which it is attached is considered part of that river system. Examples: reservoir/flowages, backwaters and secondary flow features (braided streams). Values: • <WBIC> = WBIC provided by ROW. • 0 = No WBIC provided from ROW to assign to that feature.
RIVROWNAME *70 character*	RIVROWNAME *70 character*	RIVER_ROW_NAME *70 text*	*ROW Name.* WDNR's Official Name for the river from the Register of Waterbodies.
SHAID_TYP* *2 character*	SHAID_TYP* *2 text*	SHAID_TYPE* *2 text*	*SHAID Type.* Character code indicating the SHAID type. Values: • BA = Backwater • CB = Cranberry Bog

Wisconsin DNR 24K Hydrography
Data Dictionary for Coverage, Shapefile and ArcSDE Datasets
Version 5

HYDNW924 .PATSHAID *Coverage (load source for other formats)*	HYDRSHAI.SHP *Shapefile*	EN_SURFACE_ WATER_SHAID_ AR_24K *SDE Feature Class*	DESCRIPTION / DOMAIN
			- DP = Duck Pond - DC = Ditch or Canal - FH = Fish Hatchery or farm - FE = Flooded Excavation (e.g. pits, quarries, old mines) - IA =Inundation Area - IW = Industrial Waste Pond - LP = Lake or Pond - RF = Reservoir or Flowage - ST = Double-line Stream - SD = Sewage disposal pond or filtration beds - TP = Tailings Pond - UN = Unknown hydrography polygon - ZZ = Convoluted Stream
DURATION *2 character*	DURATION *2 text*	WATER_DURATION_COD E *2 text*	*Water Duration Code.* Character code indicating the span of time during which the feature contains water. Applies to ALL SHAIDs. Values: - PN = Perennial (based on cartographic symbolization) - FX = Fluctuating (based on SHAID_TYPE = CB and IA) - IT = Intermittent (based on cartographic symbolization). - NA = Not Applicable (SHAID_TYPE = UN)
LANDLOCKED *3 character*	LAND (-) LOCKED *3 text*	LANDLOCK_CODE *3 text*	*Landlocked Code.* Character code indicating if the feature is part of a landlocked hydro network. Values: - YES = Feature is part of a landlocked hydro network that does not flow out of the state. - NO = Feature is part of a hydro network that flows into Lake Superior, Lake Michigan or the Mississippi River.
HYD_VER *3 integer*	HYD_VER *9 long integer*	LAST_UPDATE_ HYDRO_VER_NO *9 long integer*	*Last Updated Hydro Version Number.* Most recent Hydro release (version) number in which the feature was edited. Example: The first release will have all SHAIDs valued at 1.
SWBICADDED *8, 10 date*	SWBICADDED *Date*	SHAIDWBIC_ADDED_ DATE *Date*	*SHAIDWBIC Added Date.* The date the WBIC for a water area (24K hydro SHAID) was first added to the hydro layer.
SWBIC_VER *3, 3 integer*	SWBIC_VER *9 long integer*	SHAIDWBIC_ADD_HYD_ VER_NO *9 long integer*	*SHAIDWBIC Added Hydro Version Number.* The Hydro release (version) number to which the water area (24K hydro SHAID) WBIC was first added.
RWBICADDED *8, 10 date*	RWBICADDED *Date*	RIVSYSWBIC_ADDED_ DATE *Date*	*RIVSYSWBIC Added Date.* The date the river system WBIC was first added to the hydro layer.
RWBIC_VER	RWBIC_VER	RIVSYSWBIC_ADD_HYD_ VER_NO	*RIVSYSWBIC Added Hydro Version Number.* The Hydro release (version) number to which the river system WBIC was first added.

HYDNW924 .PATSHAID *Coverage (load source for other formats)*	HYDRSHAI.SHP *Shapefile*	EN_SURFACE_ WATER_SHAID_ AR_24K *SDE Feature Class*	DESCRIPTION / DOMAIN
3, 3 integer	*9 long integer*	*9 long integer*	
GEOM_CHFLG *1 integer*	GEOM_CHFLG *9 long integer*	GEOM_CHANGE_ FLAG *9 long integer*	*Geometric Change Flag.* Numeric code indicating if any dimensional or positional attributes of the feature have changed. Values: • 1 = Feature has been changed geometrically. • 0 = Feature has not been changed geometrically.
NAT_CHFLG *1 integer*	NAT_CHFLG *9 long integer*	NATURAL_ CHANGE_FLAG *9 long integer*	*Natural Change Flag.* Numeric code indicating if any natural attributes of the feature (such as SHAID_TYPE, WATER_DURATION_CODE, LANDLOCK_CODE) have changed. Values: • 1 = At least one natural attribute of the feature has changed. • 0 = No natural attributes have changed.
GNIS_CHFLG *1 integer*	GNIS_CHFLG *9 long integer*	GNIS_CHANGE_ FLAG *9 long integer*	*GNIS Change Flag.* Numeric code indicating if any GNIS attributes (such as SHAID_NAME or RIVER_SYS_NAME) of the feature have changed. Values: • 1 = Either or both names have changed. • 0 = No name change.
WBIC_CHFLG *1 integer*	WBIC_CHFLG *9 long integer*	WBIC_CHANGE_ FLAG *9 long integer*	*WBIC Change Flag.* Numeric code indicating if any WBIC attributes (SHAID_WBIC or RIVER_SYS_WBIC) of the feature have changed. Values: • 1 = WBIC attribute has been altered. • 0 = WBICs unchanged.
NEW *1 integer*	NEW *9 long integer*	NEW_FEAT_FLAG *9 long integer*	*New Feature Flag.* Numeric code indicating if the feature was newly added in this Hydro release (version). Values: • 1 = A new feature. • 0 = Not a new feature.
--	(first item for shapefile)	SHAPE *geometry*	*SHAPE.* ArcSDE feature class geometry parameters.
--	--	SHAPE.LEN *double*	*Length.* ArcSDE internally calculated feature perimeter.
--	--	SHAPE.AREA *double*	*Area.* ArcSDE internally calculated feature area.

* these attributes have been indexed for faster query.

Wisconsin DNR 24K Hydrography
Data Dictionary for Coverage, Shapefile and ArcSDE Datasets
Version 5

UPLAND/ISLAND FEATURE CLASS

This feature class contains all 24K Hydrography upland and island polygons. These polygons have descriptive attributes. Some islands may have names, but in most cases they are unnamed. No WBICs exist for islands. This feature class can be used for analysis and cartographic purposes pertaining to uplands and islands.

HYDRUPLD.SHP *Shapefile*	EN_SURGACE_WATER_ UPLND_AR_24K *SDE Feature class*	DESCRIPTION / DOMAIN
SHAPE *Geometry*	--	*SHAPE.* Default shapefile item.
AREA *18, 3 double*	--	*Area.* Default coverage item. Internally calculated feature area – should not be edited.
PERIMETER *18, 3 double*	--	*Perimeter.* Default coverage item. Internally calculated feature perimeter – should not be edited.
HYDNW924_ *9 long integer*	--	*Record number.* Default coverage item – should not be edited.
HYDNW924-I *9 long integer*	--	*Record number.* Default coverage item.
SW_NO* *9 long integer*	--	*Surface Water Number.* Unique numeric identifier for each polygon (identical to corresponding SW_NO in polygon feature class).
--	OBJECTID	*Object ID.* Internal ArcSDE unique numerical identifier for each upland and island polygon.
NAME *50 text*	HYDRO_POLY_NAME *50 text*	*Hydrography Polygon Name.* Name of the upland or island based on USGS Geographic Names Information System (GNIS). Values: • <GNIS Name> = GNIS name for the feature. Applies ONLY to islands. • Unnamed = No GNIS name for the feature. Applies ONLY to islands. • NA = Not Applicable. Applies to ALL uplands.
POLY_TYP *2 text*	POLY_TYPE_CODE *2 text*	*Polygon Type Code.* Character code indicating the type of polygon. Values: • IS = Island. • UP = Upland. Applies to ALL non-water polygons other than islands.
OH_COL_MTH *6 text*	ORIG_HRZ_COLL_MTHD_ CODE *6 text*	*Original Horizontal Collection Method Code.* Character code indicating the method of data collection or conversion. (i.e. how the polygon was created/derived). Values: • MLT004 = Polygons composed of arcs with various attributes – see arc attributes.
BUILD_DATE *Date*	LAST_EDIT_DATE *date*	*Last Edit Date.* Date indicating when the feature was added and verified by the editor.
HYD_VER *9 long integer*	LAST_UPDATE_HYDRO_ VER_NO *3 short integer*	*Last Updated Hydro Version Number.* Most recent Hydro release (version) number in which the feature was edited. Example: The first release will have all polygons valued at 1.

Wisconsin DNR 24K Hydrography
Data Dictionary for Coverage, Shapefile and ArcSDE Datasets
Version 5

HYDRUPLD.SHP *Shapefile*	EN_SURGACE_WATER_ UPLND_AR_24K *SDE Feature class*	DESCRIPTION / DOMAIN
	SHAPE *geometry*	*SHAPE.* ArcSDE feature class geometry parameters.
	SHAPE.LEN *double*	*Length.* ArcSDE internally calculated feature perimeter.
	SHAPE.AREA *double*	*Area.* ArcSDE internally calculated feature area.

* these attributes have been indexed for faster query.

POLYGON MASK FEATURE CLASS

This feature class contains a combination of the Wisconsin state boundary and the shorelines along Lake Michigan and Lake Superior. It has an outlying box that closes off the bounding area, and, therefore, can be filled in and used as a mask. The mask covers the 1,000 meter 24K Hydrography buffer that extends beyond the Wisconsin state boundary or out into the Great Lakes. This feature class can be used to create a clean display of 24K Hydrography features that lie within Wisconsin's state boundary when creating maps.

HYDPMASK.SHP Shapefile	EN_SURFACE_WATER_ MASK_AR_24K SDE feature class	DESCRIPTION
AREA *12, 3 double*	--	*Polygon Area.* Default coverage item. Internally calculated feature area – should not be edited.
PERIMETER *12, 3 double*	--	*Polygon Perimeter.* Default coverage item. Internally calculated feature perimeter – should not be edited.
HYDPMASK_ *11, 0 double*	--	*Record Number.* Default coverage item – should not be edited.
HYDPMASK-I *11,0 double*	--	*Record Identification Number.* Default coverage item.
--	OBJECTID	*Object ID.* Internal ArcSDE unique numerical identifier for "inside Wisconsin" and "outside Wisconsin" areas.
INSIDE *19, 3 double*	INSIDE_WI_FLAG *1 integer*	*Inside Wisconsin Flag.* Numeric code indicating if the area of the mask is inside Wisconsin state boundaries. Values: • 1 = inside Wisconsin state boundary. • 0 = outside Wisconsin state boundary.
--	SHAPE *geometry*	*SHAPE.* ArcSDE feature class geometry parameters.
--	SHAPE.LEN *double*	*Length.* ArcSDE internally calculated feature perimeter.
--	SHAPE.AREA *double*	*Area.* ArcSDE internally calculated feature area.

Last updated: 11/14/2005   18